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Automation Now and Then: Automation Fevers, Anxieties and Utopias

> *The cybernation revolution has been brought about by the combination of the computer and the automated self-regulating machine. This results in a system of almost unlimited productive capacity which requires progressively less human labor. Cybernation is already reorganising the economic and social system to meet its own needs'(Statement: Ad Hoc Committee on the Triple Revolution).*

Automation anxiety is a cyclical phenomenon. This article examines ways of thinking about the recurrence of automation debates in culture, particularly with reference to the 1950s, 1960s and today. We return to earlier automation scares emerging in the 1950s and 1960s to focus on engagements between labour, civil rights, left public intellectuals, and emerging industrial figures, amongst others, over the question of automation. We also explore significant governmental responses. Our aim is to produce a new context for understanding and responding to recent left thinking on automation, particularly as it has been used to invoke postcapitalist utopias.

We engage with the concept of *topos*, drawn from media archaeologist Erkki Huhtamo, to think about automation anxiety (and automation fever) as a recurring response to a series of new developments in automation, each time new, but also each time drawing on older formations, or reviving their salience. Huhtamo also explored automation but, while appreciating his methodology, we nonetheless do not follow the trajectory (or archaeological trail) he laid down in his work on automation. This suggests a topological shift from cybernation to interactivity. In our view a more useful trail can be laid. It leads from the early automation debates, through what was known as the cybernation scare, not to interactivity (or digital media as communicational culture), but towards generalised precarity, as an expected and actual outcome of automation. Left explorations of the prospect of the leisure or post-wage society – the latter configuring visions of postcapitalist utopia where abundance replaces precarity – are part of this formation. These include, for instance Bastani's demands for *Fully Automated Luxury Communism*, and more established analyses, notably Paul Mason's *Postcapitalism*, and Nick Srnicek and Alex Williams's *Inventing the Future*.[1]

Our approach is therefore defined broadly speaking as media archaeological. Part of what we are interested in is the concept of revived salience. How are automation debates unfinished business? How and in what form do tropes evident in earlier debates return?

What modes of media archaeology may be developed to *explore* this kind of return?. We intend The intention is both to explore a form of 'doing history' (what kind of media archaeology can register the informing influence of earlier debates or comprehend why, and how, certain elements of them travelled and others did not?), *and* through that to understand better left responses to technological progress/computational determination.

The paper comes in four parts. We explore the origins of the term automation, significant for us because it marks a break with earlier modes of industrial mechanisation. We look at 'progressive' responses to what was known as the cybernation 'scare' or the cybernation moment of the early 1960s. We move on to ask what we can learn from the cyclicality of automation anxiety discourses. Finally, we look at the implications of this analysis for discussions of automation on the left.

We are aware that media archaeological activity may itself contribute to a politics of memory and we are influenced by Benjamin's call to let the past intervene in the present, not as that which has been tied into place by subsequent events (the history victors tell, the technological culture the market gave us), but *as* unfinished business. What was never resolved in earlier automation debates, and so returns, and what appeared to resolve into common sense, or a particular sense of the boundaries of the possible; what we might term techno-capitalist realism following Mark Fisher, still matters, we argue, because it can trouble strident claims that a technological utopia really can be delivered this time around.

Automation in the 1950s

In the 1950s automation was a word whose meaning was still being debated. Even then there were doubts that what it described was entirely new. A 1956 report of the UK Department of Scientific and Industrial Research opined, 'Automation…a new word for what is both old and new… the use of the word is somewhat confusing'.[2] Three competing definitions were offered: as an extension of mechanisation through transfer devices that moved products from one machining operation to another; as automatic control of whole production processes; and as information processing by 'the electronic digital computer' (p10).

The U.S. Congress also reported on automation in 1956 via a series of Joint Economic Committee (JEC) hearings. At these, the chair, Wright Patman, noted that a term so novel it did not appear even in the dictionary had nonetheless achieved such currency that, 'we can scarcely pick up a magazine without finding a reference to it'.[3] It made sense, then, that the

first speaker at the hearings was John Diebold whose *Automation: the advent of the automatic factory* had done much to popularise the term.[4]

Diebold acknowledged scepticism about the novelty of automation, admitting that automatic control had been a feature of manufacturing since at least the continuous process flour mill built in 1784. Nonetheless he was insistent that automation was new, not simply an extension of mechanisation. It was not truly found in the use of transfer devices on a production line, which Ford Vice-President Delmar S. Harder had been thinking of when coining the term in 1947; such 'Detroit Automation' was mere mechanisation.[5] True automation was found in the oil refinery, where petroleum was manufactured through a continuous process monitored and controlled automatically, or in new technologies of computing and data processing in office work.[6] Automation meant the wholesale restructuring of production processes as 'closed and integrated' systems amenable to automatic control, the gathering, transmission and use of information for the purpose of optimising production, and the extension of automation 'as a philosophy' beyond the factory, the traditional realm of mechanisation, into whole new domains such as office work'.[7]

Diebold drew on ideas espoused by Norbert Wiener, notably in 1948 in *Cybernetics: or control and communication in the animal and machine*. Wiener envisaged a new age of machines succeeding those of the steam engine (nineteenth century) and clockwork (eighteenth century).[8] This new age would be based on technologies of communication and control, particularly on the principle of feedback. Wiener didn't use the term automation in this book but did envisage radical change through the introduction of cybernetically inspired systems into society and culture, and it was from him that Diebold drew the idea of a 'second industrial revolution'.[9] Both cybernetics and Dieboldian automation envisioned a break with the mechanisation typical of the industrial age. Wiener suggested that, where the first industrial revolution 'devalued' the human arm, the second would do the same for the brain. Certain specialist brains, 'the skilled scientist and the skilled administrator', would survive, just as skilled carpenters, mechanics and dressmakers had outlasted the advent of factory production, but 'the average human being of mediocre attainments or less … [would have] … nothing to sell that it is worth anyone's money to buy'.[10]

Cybernetics had wide currency in the early 1950s. Wiener's book was a surprising best seller, as Thomas Rid notes,[11] and his ideas were central to the interdisciplinary Macy conferences between 1946 and 1953, attended by mathematicians and scientists but also social scientists and anthropologists - including Margaret Mead and Gregory Bateson.[12] Cybernetics showed how a machine could respond to feedback to adapt itself to its

environment. The analogy is between machine and organism; a machine could be seen to regulate itself like a human being or animal, while, as Wiener had shown in his war work, a human pilot taking evasive action against anti-aircraft fire could be viewed as a self-regulating machine.[13] Cybernetic ideas thus produced 'a blurring of the human-machine boundary in general'.[14] Demonstrations of primitive robots at the Macy conferences helped to cement the sense that this analogy 'was powerful because it *worked*'.[15]

N. Katherine Hayles, amongst others, has argued that the equivalence cybernetics presumed, between human (or animal) and machine, is problematic. Cybernetics understood both humans and machines to be 'goal-seeking mechanisms that learn, through corrective feedback, to reach a stable state' (p65). This state (homeostasis) is achieved through information flows, so that the analogy relies on the reduction of complex and situated behaviour to information processing. The abstraction and valorisation of the concept of information as 'more essential than matter or energy' produces an understanding of both organisms and machines resting on the 'reification' of information (p50).

For Hayles cybernetics inaugurates information as the 'systematic devaluation of materiality and embodiment', a tendency she finds at work in the scientific practice and culture of information technology from the 1950s onward (p48). The key for us is Hayles' reminder that the abstraction of information was controversial *even in the Macy years*. She highlights Macy conference attendee Donald Mackay's argument that information needed to be understood as structural and contextual rather than simply 'selective', and Frank Fremont-Smith's insistence on psychological complexity; his opposition to the reduction of the human subject to 'a black box functioning as an input/output device'.[16] It is notable that Wiener too had doubts about the applicability of cybernetics to human social systems.[17]

So the assertion by cybernetics of a fundamental equivalence between humans and machines led to both exhilaration and uneasiness.[18] Both this equivalence and the emotions it engendered are visible components of the automation anxiety of the 1950s; as Rid observes, popular culture frequently featured robots threatening their human creators.[19] An oft-reproduced cartoon from Leslie Illingworth in *Punch* in June 1955, for instance, depicts a humanoid-like robot with 'Automation' emblazoned on its chest towering over factory gates bearing the sign 'Hands Wanted', while a human worker armed with a spanner cowers in a machine shed. Such symptomatic images were not new. Amy Sue Bix notes that the figure of the humanoid robot worker was used by cartoonists to depict the threat of technological unemployment from the late 1920s onwards,[20] while Karel Čapek's *RUR*, credited with the term robot, received its New York premiere in 1922.

Diebold thought the equivalence of human and machine in *Cybernetics* was a mistake and could lead to widespread misunderstanding of automation. He resisted the characterisation of automation as 'a mystical pseudoscience of robots and giant brains'.[21] However, while Wiener saw cybernetics as a major challenge to employment, Diebold's assessment of automation was more cautious, but also optimistic. He warned against exaggerating its economic impact and doubted that mass unemployment would be its result.

Diebold's general take was reflected in wider political and policy debates. A crucial component of discussion around automation in the 1950s was that it took place, as the JEC observed, in the context of 'relatively high employment levels and of a prosperous economic situation'.[22] Wright Patman trumpeted that 'not a single witness raised a voice in opposition to automation and advancing technology'.[23] Labour leaders testifying to the JEC emphasised they were not opposed to automation but its introduction needed to be managed for the benefit of workers.[24] The underlying economic assumption of the Congressional report was that a trade-off between work and leisure, 'a choice between added leisure and added products and comforts' could be negotiated.[25]

The dominant left political outlook (both in the US and UK) invoked in these early discussions of automation was reformist; automation was viewed as a containable development that could potentially improve working conditions, so long as managed correctly in terms of working hours, training and so on. A British Labour Party discussion pamphlet in 1957 saw in automation the potential for a higher standard of living and greater leisure.[26] But alongside reformist views, there were also, albeit in nascent forms, more revolutionary visions of automation. For instance, in the first issue of the *Situationist International*, Asger Jorn railed against the failure 'to think through the ultimate consequences of automation', and criticised the prevailing socialist productivist vision of automation as leading to ever more goods available to the widest possible number.[27] Against the technocratic outlook of 'automation partisans', he argued, automation could lead to a great new cultural flourishing. The leisure time it opened up, no longer dedicated to pointless hobbies, could lead the 'sleeping creator' in each human to awake. The logic here is of a flip in production: automation as the ultimate refinement of standardised consumer production paradoxically opens the door to the transcendence of capitalism *and its consumerist values*. The proposition that there might be a 'tipping point' in technological progress was not new even then. Herbert Marcuse makes a similar argument in 'Some Social Implications of Modern Technology', one of his first essays published in English. Here, as J. Jesse Ramírez has argued, Marcuse was drawing on the pre-war discourse of the American technocracy

movement, and the left technocratic ideas of Lewis Mumford as expressed in *Technics and Civilisation*, where instrumental rationality transformed itself into something closer to a liberation (technology).[28]

1950s dreams (or nightmares) concerning automation were based more on an idea than a functioning reality. While the digital computer played an important (albeit not totally dominant) role in predictions of a more automated future, in mid-1961 there were only 5371 computers at work in the United States and 40% of those belonged to the military, as Rid notes.[29] Nonetheless, the *idea* of automation as a serious proposition, inspired in part by cybernetic claims of general systematisation, had taken root, in social and political milieus, and for those participating in the construction and circulation of this imaginary, it *was* qualitatively distinct from mechanisation. Its proponents envisioned a second industrial revolution, a futurological construction with many sequels – including some still proclaimed in our own era; for instance in Klaus Schwab's fourth industrial revolution thesis, or Max Tegmark's *Life 3.0*.[30]

As the 1960s dawned, visions of a world full of information and computation came closer to being realised, albeit not necessarily in the forms expected, and as societal impacts of automation were felt in the US, the likely acceleration of these impacts was actively explored. Computers began to enter ordinary life in a variety of ways, particularly impacting the management of clerical and bureaucratic tasks, although they were still far from domestic machines. There was also a shift in the cultural imaginary. As Amy Bix points out, in cartoons the monstrous robots of the 1950s give way to depictions of mainframe computers alongside their subservient human operators.[31] However, the terms of this controlled/controller relationship were recognised as unstable, subject to change, even by advocates of cybernation. In a statement welcoming the cybernation revolution as one of three keys to a new and better future, the Ad Hoc Committee for the Triple Alliance, fervidly pro-computation, hailing a world of unlimited capacity, noted that 'cybernation is already reorganising the economic and social system *to meet its own needs*'.[32]

The Cybernation Scare of the 1960s

The term *cybernation* was generated by Donald N. Michael, in *The Silent Conquest*, a pamphlet length discussion of cybernation produced as a report for the Centre for the study of Democratic Institutions in 1962.[33] Cybernation stood for the acceleration of older forms of automation through their coupling with computational technologies, the 'computer machines', that enabled cybernetic systemisation.

Of particular concern was the expected impact of the automation of work of many kinds through the combination of computers and 'the automated self-regulating machine'.[34] The cybernation thesis said that computerisation had re-tooled earlier processes of automation, more or less those based on mechanisation, to produce a new situation. What was heralded was the widespread replacement of human labour by intelligent machines, a development entailing massive social upheaval and societal change. Specifically, it would end work. It would also problematise the question of leisure: how would time be meaningfully occupied beyond the time in which 'having an occupation' organised life as a whole? (Few considered women outside of work in any of these debates).

The term cybernation briefly became current in the US in the early to mid-1960s designating both a mode of strong technological optimism and a wave of automation anxiety. Commentators at the time talked of a 'cybernation scare', a rising sense of concern around the consequences of technologically delivered upheaval. The crux of this anxiety was not so much the fear of being conquered by intelligent machines – although this lurked beneath some of the debates – but rather concerns around social upheaval in the run up to full automation on the one hand, and the prospects for humans in a society of full leisure that no longer needed their labour, on the other. A third anxiety, clear on the organised left, concerned political power and agency. Stripping the dignity of labour from working 'men' would take away their power to withdraw it voluntarily, and for some the capacity to refuse to work was precisely *where* such dignity was to be found.

These arguments were rehearsed through writings and debates around cybernation - including notably *The Silent Conques*t and the responses it produced, and the *Manifesto* produced by the Triple Alliance, both discussed further below. Other forums included for instance the First Cybercultural Conference, held in New York in 1964,[35] where many of the most vociferous protagonists gathered, and the left press.

The Silent Conquest defined cybernation as referring 'both to automation and computers' -- it was their combination that would produce 'a profound difference in kind'.[36] The cybernation debaters believed themselves to be at turning point; Weiner's 1948 prediction of an imminent choice between 'good' or 'evil' technology re-circulated. For many the moment of decision had come but now the stakes were often understood in political frameworks.[37] Echoing Weiner, but translating into the language of political science, Michael argued there was 'every reason to be concerned with the implications of thinking machines …whose capabilities and potentialities were 'unlimited' and which had 'extraordinary implications for the emancipation and enslavement of mankind'.[38]

The Silent Conquest is a peculiar document, at once detailed and speculative, prescriptive and bewildered. It sets out 'the advantages of cybernation' (p10), arguing it is necessary for the survival of a democratic system, but it also considers a series of problems, predicting mass unemployment, suffered unequally so that dominated groups bear the brunt of disruption produced by the end of work, and fearing widespread unrest as a result. It predicts a future society of various 'leisure classes' where work becomes a luxury (p29), and, in a discussion of life 'after the take-over', it speculates on how the inhabitants of a new world will fill their time; 'even with a college education, what will they do all their long lives, day after day, four-day week after four day week, vacation after vacation, in a more and more crowded world…What will they believe in and aspire to as they … pursue their self-fulfilling activities whatever they may be?' (p45). The report is cautious, even fearful, but argues that whatever the arguments put forward for and against this kind of future it *will* come. 'There can be no 'moratorium on cybernation' (p42).

The Silent Conquest gained some coverage in the broadsheet press: The *New York Times* ran with a frontpage headline 'Automation Report Sees Vast Job Loss' reporting fears of 'vast unemployment and social unrest'.[39] Elsewhere others considered similar questions. In England Sir Leon Bagrit gave the BBC Reith lecture series for 1964, choosing for his subject 'The Age of Automation'.[40] Huhtamo suggests that by the mid-sixties, cybernation concepts were being 'widely debated as markers of a technological transformation… felt to be shaking the foundations of the industrialised world'.[41] Huhtamo's assessment can be qualified somewhat; Michael amongst others noted the widespread ignorance of the likely impact of cybernation amongst the general public at the time. In its more technical iterations cybernation remained a debate amongst the interested; even while issues at its heart - labour, leisure, the future of work, social power in a post-work society - were taken up more generally.

Amongst the interested were groups and individuals engaging in progressive politics and analysis. They discussed cybernation with the technologists of the nascent tech industry at live events (the Cybercultural Conference of 1964 is remarkable for the individuals gathered to explore cybernation and the end of work), and through journals. A key output here was the Manifesto for Triple Revolution, developed by an Ad Hoc Committee of 'thirty two prominent social critics and economists'.[42] The Manifesto's definition of cybernation largely follows that developed by Michael, although he was not a signatory. What makes it distinctive is its scope and range; it moves beyond the narrower industrial and strictly technical questions towards a global vision of a new world order.

The Manifesto identified ‘three revolutions underway in the world…the cybernation revolution of increasing automation; the weaponry revolution of mutually assured destruction; and the human rights revolution’.[43] Cybernation, a revolution brought about by ‘the combination of the computer and the automated self-regulating machine’, was essential to all three since ‘if peace was the greatest prize, and civil rights the most pressing as a political demand, the means identified to bring about change was cybernation’.[44] The ‘advent of cybernation’ would bring an end to ‘job holding as the general mechanism through which economic resources are distributed’ and would simultaneously massively expand productive capacity.[45] As the signatories put it ‘[t]he cybernation *revolution…*results in a system of almost unlimited productive capacity which requires progressively less human labor’ (p5).

The Triple Alliance is a call for intervention, a call to arms that proclaims it *has* the arms to hand out. Its authors argue cybernation is inevitable, but that, properly deployed, it can have a progressive dividend. The perils of failing to cybernate are common ruin, or tyranny - ‘we may be allowing an efficient and dehumanised community to emerge by default’.[46] In the end however there is optimism about the prospects: ‘cybernation, properly understood and used, is the road out of want and toward a decent life’.[47]

This is not only an argument about the sustainability of the economics of a post-work society. The Triple Alliance demands the invention of new forms of life. As they suggest; ‘cybernation at last forces us to answer the historic questions: What is man’s role when he is not dependent on his own activities for the material basis of life?’ (p9). Echoes of that other Manifesto are clear, and the prize here, as it was in Marx’ original, is freedom. The Ad Hoc Manifesto proclaims that ‘(a) social order in which men make the decisions that shape their lives becomes more possible now than ever before; the unshackling of men from the bonds of unfulfilling labor frees them to become citizens, to make themselves and to make their own history’ (p13). The society of full automation is not at history’s end.

On the other hand, this is a document that has at least as much to do with J.K Galbraith and the *Affluent Society* as with Marx, and the former was influential in the thinking of some signatories to the Manifesto.[48] Moreover, if the Triple Revolution document is striking for the global contexts within which automation is framed, as a tool for peace, at home it was less idealistic in tone, as much concerned with a politics for transition than with outcomes, and more prescriptive. As James Boggs, an African American autoworker, civil rights activist, and signatory to the Manifesto explains: ‘The committee claimed that machines would continue to reduce the number of manual laborers needed, while increasing the skill needed to work,

thereby producing greater unemployment. It proposed that the government should ease this transformation through large-scale public works, low-cost housing, public transit, electrical power development, income redistribution, union representation for the unemployed, and government restraint on technology deployment' (Boggs, 1963).[49] Boggs was an advocate of full cybernation partly on the basis that organised labour had only grudgingly accepted African American workers into its ranks – arguments for the dignity of labour rang hollow for those who had been last in,and would, he feared, be first out.

The Triple Revolution document was published in *Liberation*, presented to Lyndon B. Johnson in March, 1964, and was read in Government circles. It received coverage in the mainstream and also in the more specialist press. Winthrop claimed wide circulation in the '*avant garde* periodicals of ideas', including *The Correspondent, New University Thought*, *The Minority of One*.[50] It gained traction in labour networks, and circulated amongst civil rights activists - it was on the curriculum at the Mississippi free school camps. It percolated into the counter-cultural milieus, notably inspiring a story in Harlan Ellison's 1967 SF collection *Dangerous Visions*: William Jose Farmer's 'The Riders of the Purple Wage' is a dystopian take on a future leisure society of staggering violence, marked by banality and creativity – and extreme sexism.[51]

So, where did the cybernation moment go? The 'scare' and the 'fever' certainly subsided, and the term fell into disuse. James E. Block, in an article entitled 'The Selling of a Productivity Crisis', assesses earlier discussions of the leisure society, in relation in part to the Triple Revolution, asking why public discourse 'led away from the consideration of a society less centred around the workplace'.[52] Block identifies a 'deep collective failure' to confront uncertainties raised by cybernation, blames 'entrenched interests, who wish market inequalities to persist, and do so by shifting the blame onto workers', but also suggests reasons why the debates were not taken up widely on the left. First a non-work centred argument aligned with lifestyle revolution that was itself regarded as based on valorising 'artificial want' - in other words arguments for the end of work were bound up with critiques of rising consumption. He also notes the historical association of the (US) left with the *working* poor (p16), and, we might conclude, with the sectoral interests of the labour organisations. He argues that the failure to confront cybernation meant 'discussions on automation, non-work society, and alternative forms of distribution held in the late fifties have been deferred for a generation.' (p13).

Productivity or Knowledge?

Cybernation, as framed by Donald Michael, and as taken up by the Ad Hoc Committee was centrally a matter of the expansion of productivity. Cybernation would produce a society of plenty, in which work was largely not necessary, and in which goods would be freely available to all (or at least all Americans) including to groups historically discriminated against. This understanding of not only the impact of computation on society, but of the relationship between productivity, consumption, and automation, is at odds with other readings. These include commentaries from industrial concerns. An example is George Terborgh's 1965 report for MAPI, a manufacturers organisation.[53] Terborgh argued that cybernation was not exceptional; that, as for other moments of technological change impacting labour markets, disruption would be less than apocalyptic, and also temporary. He also argued that cybernation arguments over-emphasised process at the expense of changes in production; if consumption could expand to 'take in' an increase in production then claims computer technology would raise the level of production beyond consumption needs were misplaced.

Other readings were undertaken with a more or less progressive intent. Disentangling liberal and left accounts of computation circulating at the time is useful because it can help us understand how they travelled on or were submerged. Of note here is a bad-tempered exchange in the *New York Review of Books* marking an intervention into cybernation debates by sociologist Daniel Bell. Bell argued that the productivity presumptions informing Donald's case failed to stack up,[54] and that the extent of likely computer use, discussed in a (rather wonderfully cautious) Labor Department study, had been exaggerated in the *Silent Conquest*. The problem of demand was at the heart of that issue, and was debated elsewhere too.[55] In an account of liberal and radical positions around post-industrialism that seeks to explore the place of the New Left in the post-industrialism debates, Brick argues that Bell, essentially a liberal, 'refused to consider the alleged obsolescence of work a hallmark of post-industrialism',[56] insisting rather that the defining factors concerned questions of 'theoretical knowledge' (p356). This thesis later informed Bell's 1970s work on the information society, which became key in discussions of modernity/post-modernity and its cultural logics. Brick (p347) argues that Bell wrote the 'landmark' *The Coming of Post-Industrial Society* more or less 'as a response' to *The Silent Conquest.*[57]

The more narrowly defined debate around cybernation thus fed into to a 'formative, historical moment – a period roughly from 1958 to 1967' of the theory of the post-industrial society in general.[58] Bell's later work on the post-industrial society, as a knowledge society, is again an indicator here, since as an intervention, it was the one that won out; It was Bell's vision of the information society that informs Fredric Jameson's influential diagnostic work on the cultural

logics of late capital,[59] itself a response to the failure of '68 (of revolutionary projects), and an attempt to grapple with, or find the appropriate figurations for, new forms of technological culture. Freed from the discourse of the end of work and the leisure society, the issues of the rising levels of computerisation within society – and shifts in computing itself (from brute automation to refined control, from ungainly giants to office machines, from rarity to proliferation, from information controllers to 'ICT's), discussions concerning computer technology and culture took new turns. Attention shifted to a techno-politics centred on knowledge rather than organisation or (directly) economy; open the databanks to the people said Lyotard, in his famous report on knowledge,[60] which, it is often forgotten, was produced as a commissioned report for the Government of Quebec. We are presenting here a radical compression of extremely complex ideas, but indicating ways in which a particular series of links between the end of work and computation were apparently uncoupled for a time, their topo(i)logical connections submerged.

The cybernation scare came to nothing - in that the term died, the end of work did not come, and many of its key tropes arguments and logics, its grand narratives, were submerged in the cultural turns of the late twentieth century on the left – and by globalisation and market economics of Thatcherism and its transatlantic counterparts.

The discourses of cybernation scare did not entirely dissipate. Elements remained to haunt associated discourses, even in eras when they did not 'fit',[61] and today they are certainly back in evidence. Cybernation tropes resonate strikingly with new waves of automation, particularly around questions of labour and its end, leisure and its prospects, and the relative prioritisation of transition versus outcome. Attending to these revenant elements is useful in responding to automation today, particularly in relation to left accounts of automation and the leisure society. Considering their trajectory also enables the generation of a more nuanced and less 'corrective' assessment of the earlier period, and its players.[62]

The cyclicality of automation debates

As we head for the 2020s, reports of the imminent end of labour are once again current. Confident predictions that the expansion of automation will impact new job categories, terminate the logics of a wage economy, and disrupt life, leisure, and markets are circulating afresh. These are fuelled by a new convergence, between big data and its cloud handling, the internet of things and developments in robotics, which re-organise the relationship between computational operations and the world, and all that comes under the umbrella of AI, notably machine learning. The precise factors invoked vary in different accounts. Carl Benedikt Frey and Michael A. Osborne, in a much cited work, point to machine learning,

including data mining, machine vision, computational statistics and other fields of AI in their assessment, and also underscore the falling cost of computation in general.[63] Whatever the precise technological configuration, this range of developments, with AI at their heart, underpin an extension of automation's reach and operations – and lead to claims computers will take over functions not previously amenable to automation; including roles involving emotional labour, or particularly human kinds of intellection. This time around, the 'end of work', or so we are told, will arise not only for blue collar and lower middle management roles, but also for the professions; academics, doctors, lawyers are invoked as potential victims (or beneficiaries) of new waves of automation.[64] Once again it is useful to consider where these ideas are circulating and how those exploring them relate to, or draw down, older frames - in particular those already discussed above. In these new contexts in other words, how do the older discourses and arguments become salient once again? In particular how do they relate to, haunt, or inform left discourses?

This time it's different?

Some contemporary proponents of automation anxiety, such as entrepreneur and 'futurist' Martin Ford, recognise that arguments about the threat/promise of full automation are not new. In *The Rise of the Robots: Technology and the Threat of Mass Unemployment* Ford invokes the Triple Revolution thesis as 'the crest of a wave of worry' about automation in the postwar era,[65] and poses the obvious question:

> Given that the dire circumstances predicted by the Triple Revolution report did not come to pass…. Were the authors of the report definitively wrong? Or did they - like many others before them - simply sound the alarm far too soon? (p33)

The answer he finds represents a classic restatement of the case that 'this time it's different'. The Triple Revolution got it wrong, he argues, because both computational technologies and their impacts on the workplace were then only nascent: the 1950s and the 1960s were for the most part decades of rising incomes and low unemployment. In our own time both these elements have changed. The powerful (yet still, largely invisible) hand of automation can be discerned at work in many of the economic ills of our era - such as stagnant wages, the decline of labour's share of jobless recoveries, declining incomes and soaring inequalities (pp34–52). For Ford, this time it's different then, because now computational automation and technological unemployment are real. Bastani's case for luxury communism represents a Marxist (or reductionist Marxist) version of precisely the same argument. Now the society of plenty, the life beyond the realm of necessity, the promise revolutionaries from 1917 on through the cybernation advocates of the 1960s could not deliver because the means of production were not sufficiently advanced, is now – effectively - downloadable.[66]

The economic foundations of Ford's argument are disputed; for example in David Autor's sceptical arguments about the extent to which human labour can be automated using current and projected technologies.[67] But the chief interest here is not in whether Ford and other contemporary writers are more justified in sounding the alarm about automation than the authors of the Triple Revolution report in the 1960s. We are more interested in the cyclical tolling of the automation alarm bells than in establishing the validity of the empirical and economic basis for sounding them this time around. (From our cultural and historical perspective, it seems naive to imagine that automation outcomes rely in any simple fashion on currently measurable technological developments and their economic impacts).

We see rather a need to understand in its own right the recurrence of these automation debates in our own age and their broad recuperation of themes from previous cycles. This in turn demands analysing the cyclicality of automation anxiety and the attitudes to computational technologies and social change embedded in it.

Undertaking this we have focussed on the 1950s and 1960s debates because they both evidence a shift into information (in this case from mechanisation to automatic control through informatics) and a concomitant focus on labour and its ending. It is this that resonates with the contemporary moment in a way that dominant discourses of computation in the 1980s and 90s within left milieu do not; there were exceptions – Jeremy Rifkin's intervention might be one of them.[68]

We perceive in the earlier automation debates in the 1950s and 1960s neither a prescient foretelling of contemporary developments nor an example of the way in which, historically, fears about technological unemployment have been overstated, (and may therefore be safely established as inert precursors to the real thing, and/or as 'proof' that such scares never out). Our response to Tegmark, Ford, Bastani, and others is not to contest their claims *in their own terms*. We do dispute the presumption, embedded in these arguments to more or less explicit degrees, that those exploring automation today have a superior understanding of technical formations and their impacts on society, culture, productivity, work, and are therefore more able to 'see' or 'call' revolution than those with more primitive technology and a primitive grasp of technology (the two tend to merge, in these arguments). This 'correctionist'[69] approach to understanding computational histories rubs out the complexity of arguments, the fact of dissent, antagonism, disagreement, the relations of power that operated to enshrine particular arguments and bury others, in the past. It reduces the claims for automation as a disruptive technology in the present to a simple matter of

having better technology this time around. The social histories that are now being unearthed, for instance that of the Triple Alliance, can mitigate against this kind of un-reflexively technological reading (in which technology is abstracted from discourse and imagination – once again 'reified') - so long as these earlier times are not invoked in the spirit of what we term progressivist correctionism.

We use this approach to make the case that automation debates not only reflect chronologies of technical development, they even run ahead of them; they also gather up attitudes to, and projections of, technology, which may be held and released at different times. There is a technological imagination at work in automation anxiety and it travels in different ways, and more relatively autonomously from the many material forms in which it may be partly instantiated, than might be expected.

It is in pursuit of this non-linear and anti-teleological approach to technological history that media archaeology, drawing on the work of Walter Benjamin and his understanding of historical time, has been useful. Benjamin argued that archaeology was necessary politically because history 'belongs' to the victors. It is what wins out that organises how earlier dissenting moments, disputes, disorderly suggestions, are understood. Much of the past is, in his terms, thus not available to the present. On the other hand, since this linear consignment is political, not inevitable, nor is this past necessarily *done with*. In this spirit media archaeology seeks to argue that the past may continue to act in the present. Discerning the cyclicality of automation fever we find a way to respond to the question of *how* this action or return may occur in this case. It goes with the grain of Benjamin's focus on complex and non-linear temporalities that disturb linear histories.

The concept of *topos*, as developed by Huhtamo,[70] and the queer historiography of Valerie Traub,[71] which deals in matters of revived salience, both presume disjuncture, but also deal in disconnected connectivity, and point towards ways to elaborate our thesis. Their explorations of the temporal dynamics of various tropes or topoi (those of the body for Traub, of the technological for Huhtamo), allow them to consider histories of disjuncture but also to explore long-standing and sustained connections and recurrences.

Huhtamo expands on this idea of recurrence as part of a 'topological' approach to media archaeology, defining it as 'a way of studying recurring cyclical phenomena that (re)appear and disappear and reappear over and over again in media history…seeming to transcend specific historical contexts'.[72] *Topoi*, or topics are '"pre-fabricated"' moulds for experience'. The term goes back to Quintilanus (via Curtius) for whom *topoi* were 'storehouses of

thought' or 'systematically organised formulas' serving rhetoric. An example Huhtamo gives is how panicked audience reactions to Lumière's *L'Arrivée d'un train à Ciotat* (1895) resembled those evoked by Étienne Gaspard Robertson's *Fantasmagorie* a century earlier. The point is that cultural experience of technologies may operate on a different timescale from, and in some sense 'transcend', more linear histories or chronologies of technological development. Apparently unrelated apparatus or technologies of differing eras may call on the same cultural traditions or *topoi* which may then figure (and co-configure?) social adoption, experience and commercial exploitation. As Huhtamo emphasises 'though [topoi] may emerge as if 'unconsciously', they are always cultural, and thus ideological, constructs' (p222).

In his work on automation and its recurrence Huhtamo, exploring discourses of the computer as friend or foe, argues, that 'underneath the changing surface of machine culture there are tenacious and long-lived undercurrents, 'master-discourses,' that get activated from time to time, particularly during moments of crisis or rupture'.[73] We find this work suggestive methodologically, but – as should already be clear – we break with Huhtamo's focus on *ontological* topoi in relation to automation. We rather focus on 'left topoi', seeking, as a contribution to a new politics of technology, to 'read' topoi-logically across old and new left debates on automation and the end of work, to ask what of 1960s cybernation, of the fevers, chills, scares and deliriums amongst the left, that followed the rise of automation discourse in the 1950s and1960s travelled, submarined, died, or now re-emerges? Moreover what does this tell us about 'master discourses' of left technopolitics?

Automation and the left

This final section explores automation anxiety and contemporary left analysis of automation possibilities in relation to debates about postcapitalism, accelerationism and the ends of work. As in the 1960s, new debates on automation and the end of work are being had (including, in their applied form, UBI as a successor to earlier Living Wage proposals) - oOften these debates are between experts, but also in popular discourse where they are less rehearsed and come with different emphases. We argue contemporary left arguments around automation, accelerationism and postcapitalism demand to be read within the broader historical contexts of these earlier waves.[74] Doing so both locates contemporary automation within a continuous if disjunctive history of left technophile engagement, and enables a critique of particular forms of left automation desire/fever; specifically those which rely on technology 'on its own' to lead beyond capitalism.

First here let us turn, for a representative account of automation, to Srnicek and Williams' calls for full automation. In their work automation presents itself as an apparently immanent techno-economic development which, if embraced by the left, can lead beyond capitalism:

> Without full automation, postcapitalist futures must necessarily choose between abundance at the expense of freedom…or freedom at the expense of abundance, represented by primitivist dystopias. With automation, by contrast, machines can increasingly produce all necessary goods and services, while also releasing humanity from the effort of producing them. For this reason, we argue that the tendencies towards automation and the replacement of human labour should be enthusiastically accelerated and targeted as a political project of the left. This …takes an existing capitalist tendency and seeks to push it beyond the acceptable parameters of capitalist social relations.[75]

In other words, today automation is invoked once again as an escape route for the left. It offers a means through which to think through the limits of capitalism, and the difficulty of transcending it. This difficulty was felt acutely post-1968 – when a shift in attitudes to the prospects for revolution (revolutionary uprising and/or the over-throw of capital) was widespread – and the switch into a politics where the march of labour had been halted, but technology might produce transformation (instead) became marked. The (former) accelerationists, and particularly Bastani, claim that contemporary automation produces a radically new conjuncture, but nothing about the idea of (promoting) technologically-driven transcendence – *rather than the relying on the overthrow* - of capitalism is particularly new.

Transcendence is key here, and in this context Howard Brick's assertion of a thread running through American twentieth-century thought concerning the 'postcapitalist vision', the idea that 'something new and immanent in contemporary social development escaped the category of capitalism',[76] is useful. Outside the US we can also see this at work in Asger Jorn's situationist take on the ability of automation to awaken human creative potential. For the left automation can provide a vision of the immanent *transcendence* of capitalism, and one that does not have to rely on general theories of capitalist expansion and contradiction (the acceleration of the contradictions of the market and computational capitalism as a stage in that), but finds an alternative road to socialist goals. We read accelerationism in this postcapitalist tradition, as embracing automation as a technologically-driven transcendence of capitalism.

As noted, this is not a new vision. Moreover the *imminence* integral to this vision is cyclically renewed, as older tropes are revived in relation to new technological developments and imaginaries, *as* guarantees that 'this time' it's for real. One example of this is the way in

which automation anxiety is reproduced through new analogies between the human and machine, from the self-regulating machine that adapts to the environment to machine 'learning'. In the 1950s the digital computer becomes the imaginary nexus of a more total automation long before it achieves widespread adoption. Similarly the self-driving car inspired new waves of automation imagining,[77] long before general public uptake or commercial viability. What the cyclicality tells us is that what is immanent (in the transcendence of capitalism) is not imminent and what is imminent (in current technological developments) is probably not immanent – at least in the sense that as delivered, it is bound to fall short of the imaginary image, the resonating *topoi* – it draws on.

Full automation as immanent postcapitalist transcendence of capitalism is a chimera. We do not mean that technology is an illusion, nor that it does not effect material change. Automation is an imaginary that finds new purchase and form in material developments. As a cyclical development, it is framed in a paradoxical fashion: it both enables the expansion of capitalism – often its ultimate expansion – and offers a means to transcend it. In its latest AI guise, these two frames recur once more. This mode of recurrence suggests (in various spheres, but particularly on the left, which is our interest here) that there is a failure to think through the implications of a (politics based on the) technologically-delivered transcendence of capitalism. The logic of -technological realism here seems a a mirror image of what Mark Fisher called capitalist realism.[78]

One striking aspect of this transcendence of automation is that traditional forms of political participation and action are set aside by the urgent need to embrace postcapitalist automation – which will in any case render old political priorities pointless. We can see this, for example, in the way that Srnicek and Williams reject 'folk politics'[79] and horizontalism in favour of think tanks, UBI and the 'enthusiastic' acceleration and targeting of automation as a political project for the left. That is, automation's promised transcendence of capitalism is not only a promise or goal of the left but also *dictates the form of politics itself.* This is manifested in what Srnicek and Williams call 'non-reformist reformism':

> The demands we propose are therefore intended as non-reformist reforms. By this we mean three things. First, they have a utopian edge that strains at the limits of what capitalism can concede. This transforms them from polite requests into insistent demands charged with belligerence and antagonism. Such demands combine the futural orientation of utopias with the immediate intervention of the demand, invoking a 'utopianism without apology'. Second, these non-reformist proposals are grounded in real tendencies of the world today, giving them a viability that revolutionary dreams lack. Third, and most importantly, such demands shift the current political equilibrium and construct a platform for further development. (p116)

The automation agenda outlined here is at the same time reformist and revolutionary, utopian and real. While the demands may be 'utopian', 'antagonistic' and 'belligerent', the means to achieve them are politely reformist (think tanks) and state led. In other words antagonism (e.g. among workers or in class relations in general) is not viewed as, or invoked as, the source or driving force for a revolutionary end of work. The driving force instead is automation as a 'real tendency' within capitalism; and once again the latter is – at least as construed against revolutionary dreams – realistic, or practical.

There are various left objections to the automated poscapitalist, 'post-work' perspective. Frederick Pitts and Ana Dinerstein, for instance, argue that 'technology and automation cannot be reified as neutral forces the unfolding of which will deliver us a workless world supported by the intervention of the state as the new wage payer'.[80] Their arguments return us to questions of focus – for Pitts and Dinerstein a basic failing is the identification of work as the central object of capitalist domination, rather than the 'antagonistic relationships of property, ownership and subsistence' and the specific forms (abstract labour, value, money) that work takes in a capitalist society. Similarly Nathan Brown argues that Srnicek and Williams's are 'avoiding communism' rather than 'inventing the future' by essentially ignoring the extent to which the technology of automation is bound up with capitalist valorisation.[81] From Pitts and Dinerstein's perspective UBI is a dangerous chimera because it fails to reform [or overthrow] these other aspects of capitalist domination, such as the money form itself. This failure essentially means social relations remain untouched. Worse, taking away the need to work, automation-enabled UBI deprives people of labour as a source of collective organisation, resistance to, and intervention in, capitalism, 'liquidating class struggle' (p14).

We share Pitts and Dinerstein's suspicions concerning the reification of automation, but this latter point about labour is contestable; a central tenet of the contemporary postcapitalist vision is that postindustrial societies *already* deprive workers of collective organisation and action. Arguably it is precisely an acceptance of decline of the workplace as a point of struggle and resistance, *and* a lack of faith in the political power of 'networked' individuals, *and/or* a more open acceptance of capitalist realism – as an apparently closed horizon that may be opened by technology – that makes embracing or accelerating automation such an attractive political project in the first place. However, we also want to question the way in which automation and automation derived post-work utopias are framed as liberatory.

Previous generations exploring automation anxiety and 'automation thinking' from the left explored the implications of an automated end of work differently, and with different results.

In ‘Socialism in the Developed Countries’ (1965) Herbert Marcuse affirmed the idea, then, as now, prevalent, that automation represented a potential within capitalist technological development that, while ‘not utopian in the slightest’, might result in the abolition of alienated labour.[82] He was moreover cautious about the kind of liberation an ‘end of work’ would deliver – even in the context of a socialist society:

> What does it mean when, in mass technological society, work time – socially necessary time – is reduced to a minimum and free time practically becomes full-time? How do we set about things? … Does it mean that we are all to go out hunting and fishing, writing poetry, painting pictures and so on and so forth? … I am deliberately being provocative because I feel very strongly that this is one of the most important questions for Marxism and socialism, and not only for Marxism and socialism. We must … not go on talking airily about the flowering of the individual and dis-alienated creative work: what does it all mean? Because the end of necessary work is in sight; it is not a utopia, it is a real possibility. (p178)

For Marcuse these questions suggested a possible critique of the Marxist idea that ‘liberty can only develop above and beyond the realm of necessity’. In ‘The End of Utopia’ (1967) he suggests that a free society might consist not so much in the elimination of necessity as by ‘letting freedom appear in the realm of necessity – in labour and not only beyond labour’.[83]

For Marcuse, then, the relationship between freedom and necessity needed to be complicated. In affluent postwar American society the realm of necessity had already colonised the realm of freedom through consumption and the creation of false needs so the *quantitative* reduction of socially-necessary labour did not necessarily result in a *qualitatively* different society, since ‘domination and exploitation perpetuate themselves not only in the institutions of class society, but also in the instincts and drives and aspirations shaped by class society’.[84] As Edward Granter suggests, ‘[for Marcuse] the end of work is forever forestalled by the need to purchase, to consume, to enjoy’.[85] Otherwise put, the end of work would not produce the end of work; the automation of production would not liberate us from the realm of necessity because leisure and consumption contained their own form of unfreedom. For Marcuse the way to counter this was to *transform* production and labour so that the ‘work process itself, the socially necessary work, becomes, in its rationality, subject to the free play of the mind, of imagination, the free play with the pleasurable possibilities of things and nature’.[86]

Marcuse’s account of the end of work could be questioned in various ways. But it is striking that he and other left thinkers of the period (notably Arendt), did not embrace the apparently possible and imminent automation of their epoch as necessarily liberatory. From Marcuse’s

perspective, ensuring that the economic benefits of automation are widely distributed, as is currently suggested via UBI, might produce abundance, but that would not be *enoug*h.

The concept of technological progress, as a force immanent to capitalism, that – under the right conditions – can be turned in a different direction, is dissolved when we study automation in the media archaeological vein suggested here. Automation projects a horizon which is both real and imagined, and its imagination is founded as much on social, cultural and philosophical ideas as technology **–** which itself materialises these imaginations, and constitutes a resource for the imaginary**.** Its topology however is characterised by a linked assertion and denial, the assertion is that this time *technology* will make something new (the technology has reached the level where it can become an actor that remakes a system), and the denial is precisely that this technology is anything *other* than purely technological. Perhaps we are too anxious that what is once again recurring today, in the visions of those confident technology can accelerate freedom, is faith in a reductively defined technology. But in these contexts, we would *prefer* to maintain a certain level of anxiety: We are tempted to suggest it is essential for the continuance of hope.

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